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has undergone changes for the better, and *S. Romanzoviana*, hitherto identified only on the western slopes of North America, where it was long ago found by Chamisso, and at the single station of Bantry Bay, Ireland, is found to be present in the northern part of our region. *Liliaceæ* now includes *Melanthaceæ* and *Trilliaceæ*, and the genus *Narthecium*, and the *Junci* have undergone a careful and critical revision at the hands of Dr. Engelmann. Much laborious study has been given to the *Cyperaceæ*, and we see the number of *Carices* raised from one hundred and thirty-two to one hundred and fifty-one; the Ferns have been contributed by Professor D. C. Eaton, of Yale College, who has introduced a few changes which we are glad to see, as with *Pellæa* and *Allosorus*, *Polypodium* and *Phegopteris*, and the species of *Botrychium*. The account of our species of *Isoetes* has been contributed by Dr. Engelmann, who has given them much careful study, and who characterizes within our area seven species, while there are two more in the Southern, and three more in the Pacific States.

We are glad to see the promise of a "simpler and more elementary work," which will include the "Garden Botany" of the last edition, and more, and "designed especially for school instruction, and for those interested in cultivation,—entitled *Field, Forest, and Garden Botany*." We shall also look with eagerness for a supplementary volume, to contain the *Mosses* and *Liverworts*, newly elaborated we suppose, and the "*Lichens*, if not all the other orders of Lower Cryptogamia." Above all we congratulate Botanists that there is a prospect of the issue, before many years, of a somewhat similar Flora of the whole national domain.

The addition of six beautiful new plates (in the admirable workmanship of Mr. Isaac Sprague), of the genera of *Cyperaceæ*, is an important item to the beginner, and even to those more thoroughly versed in Botany. Every one will be pleased with the slight changes in the typographical execution and arrangement of the work.—H. M.

NATURAL HISTORY MISCELLANY.

BOTANY.

Botanical Notes and Queries. A recent number of the *Revue Horticole* (Aug. 16, 1867) calls in question the native country of *Sambucus Canadensis* Linn., our common Elder, not only regarding it as a mere variety of the European *S. nigra*,—which it well may be,—but doubting if it be really indigenous to this country. The same doubt had been raised in my own mind. Can any of the numerous readers

of the AMERICAN NATURALIST resolve the doubt by indicating any locality for it away from roadsides and cultivated ground, and quite free from suspicion? The same journal calls more decidedly in question, the American origin of *Robinia hispida*, the common Rose Acacia, and conjectures that it is an extraordinary form of the common Locust. This more unlikely opinion is based on the fact that this shrub sets no fruit either in the old world or the new; also that, on inquiry, no one seems to know it away from cultivation. This year, however, some pods are forming in France. Has any one seen pods and seeds in this country? The inquiry is in this case particularly addressed to Southern correspondents. There are in cultivation forms singularly intermediate between *R. hispida* and the *R. Pseudacacia*, or common Locust, but these are more likely hybrids. The Rose Acacia is said to be indigenous to Georgia, apparently with good reason. But definite indications of it, and fruiting specimens are desirable.

As the above-mentioned number of the *Revue Horticole* gives a figure and description of that charming hot-house climber, *Clerodendron Thompsonæ*, I may take this occasion to refer to the curious, and perhaps as yet unnoticed, arrangement of its stamens and pistils, so as to favor, if not to secure, *cross-fertilization*. The long and slender filaments and style in the flower-bud are rolled up in an incurved coil, after the manner of the genus. When the crimson corolla opens, setting these organs free, the filaments straighten at once into nearly a horizontal position, and their anthers opening are covered with fresh pollen; while the slender style is strongly recurved, carrying the forked stigma downwards and backward far under the flowers. After about twelve hours, say at sunset when the blossoms have opened in early morning, the filaments begin to curve downwards, and the style to straighten; and before the next morning the filaments are rolled up into a spiral coil the reverse of that in the bud, placing the anthers under the tube of the corolla, while the style has risen to the horizontal or slightly ascending position, so placing the stigma where the anthers were the day before. Evidently there is only a short period during which a moth, or such insect, visiting the flowers can brush any pollen from the anthers to their own stigma; but the pollen of freshly opened flowers will, in the progress of the insect from blossom to blossom, be carried to the stigma of those which have expanded the day before. — A. GRAY.

May-apples in Clusters. — In the new edition of the "Manual of the Botany of the Northern States," it is too briefly mentioned that *Podophyllum* has been found in Ohio, by W. C. Hampton, with two carpels! I would here add, that, on a visit to the Agricultural College of Penn-

sylvania last summer, my friend, Professor H. J. Clark (whose acute original observations I have frequently had to record), showed me several clusters of well-grown fruits of *Podophyllum*, of three or four upon one stalk, and evidently from one flower; and I think he remarked that they were not very uncommon. I wish to obtain some of these anomalous *Podophyllums* in flower. There is reason to expect now and then a similar monstrosity in *Jeffersonia*; and the matter has a certain botanical interest beyond the mere curiosity of the thing. — A. GRAY.

Invasions of Foreign Plants. — The prepotency of foreign plants over original vegetation, especially in the New World, in New Zealand, Australia, etc., has of late attracted attention and remark. That foreign weeds should usurp the cleared soil in this part of the country, which was originally forest-grown, is only what would be expected. But the vegetation of our more unwooded regions West and South ought to furnish plants capable of holding their own against intruders, even under present changed conditions, unless, as has been suggested, a set of plants of the Eastern world which have fought their way into Europe against all indigenous opposers, have thereby at length acquired a hardihood and generally belligerent disposition, which enables them to conquer new worlds wherever they get a foothold. Somehow or other these plants do seem, in this respect of prepotency, to take after the particular human race whose footsteps westward they follow.

These remarks are suggested by a recent instance of the sort, on the part of a Chinese or Japanese leguminous plant, *Lespedera striata* Hook. and Arn., which has got an introduction, nobody can tell how, into the interior of Alabama, Georgia, and South Carolina, and is now multiplying at a wonderful rate. I first received it a year ago, but Professor Darby informs me that he detected it about ten years ago, at the railroad station in Altoona, Georgia, and he has lately met with it in all the adjacent States. "Now," he adds, "it covers thousands of acres, and is rooting out everything, even our Bermuda Grass (itself a foreigner). "When I first came to this place [Auburn, Georgia], the *Maruta cotula* covered all waste places; in a few years the [native] *Helenium tenuifolium* took possession. Now, this *Lespedera* has conquered them both." The newspapers have lately mentioned that "a new grass, of the nature of a clover," has widely appeared in the Southern States. This is probably the thing. If it be a decent forage plant, as it well may be, this intruder, which takes such a liking to the poor soil of the South, will prove a real blessing to the country. — A. GRAY.

A VARIETY OF THE OX-EYE DAISY.—I am not a little interested in the note in the *NATURALIST* for September, by Professor Tenney, in relation to the form of the Ox-eye Daisy, which he suspects to be new. Although this form may be new to science, in that it has not been hitherto described, yet this is certainly not the first time it has been detected. Within a period of fifteen years past, I have found it some three or four times, I think; and I never suspected it to be anything but a chance variety of *Leucanthemum vulgare*. In the summer of 1865, it was brought to me from a spot close by my house, agreeing in all respects with the description by Professor T.; and wishing to try the effect of cultivation upon it, I transplanted a good root to my garden, but it was afterward destroyed by accident, before the result could become known. I cannot believe it to be specifically distinct from the common *Leucanthemum*, or anything more or less than a variation, through accidental causes, from the normal state of the species. To my mind it stands in the same line with the petaloid form of *Penthorum*, or the "*Peloria*" condition of *Linaria vulgaris*; and many other genera might be cited as furnishing instances of like departures now and then from the ordinary and natural style.—C. M. TRACY.

ZOÖLOGY.

THE BREEDING HABITS OF BIRDS.—In reading the lately published work of Mr. Samuels, on the Ornithology and Oölogy of New England, I noticed some statements regarding the breeding habits of some of our birds, which are at variance with my own observations.

Of the Belted Kingfisher he says: "The birds on arriving commence pairing, and they soon begin excavating in a sand-bank a long, winding hole, of about three inches and a half in diameter at the entrance, and gradually larger to the end, at which the nest, composed of grasses, leaves, and feathers, is built,—or laid, which would, perhaps, be the better term. This hole is sometimes as much as six or eight feet, usually from four to six, in length." Page 126.

My experience in regard to the breeding habits of the Kingfisher is entirely at variance with the above. Of two burrows found last spring, one measured thirty-four, and the other thirty-five inches in length; they were excavated in the form of an elbow. The passage leading from the entrance in one of them was sixteen inches in length; and then turning to the right, lead to a cavity of about ten inches in diameter, the bottom of which was three-fourths of an inch below the bottom of the way leading to it, and four and a half inches in height, being in the form of an oven; including the cavity,